

**TARRANTY COUNTY MEDICAL EXAMINER
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The Science of Fingerprint Identification

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Man's consciousness of the patterned ridges on his fingers and palms predates the Christian era by many centuries and as has been evidenced by successive civilizations, fingerprinting is an ancient art. It's practical application in human identification is more recent and is routinely used today than any other method used in human identification process.

Pre historic pictures found in Nova Scotia were found to have ridge patterns. Babylonians and Chinese to record business transactions used finger print impressions in clay tablets. In the fourteenth century, one Persian government official, who was also a physician, made an observation; that the fingerprints of no two persons were exactly alike. In 1684, Dr. Nehemiah Grew, a fellow of the Royal College of Physicians, in the course of a lecture commented upon the ridge patterns appearing on the fingers. While evidence exists for several such reports, the rapid growth of use of fingerprints for human identification did not take place until 1924 when the FBI established Identification Bureau.

Fingerprints are an important category of physical evidence. A fingerprint places the suspect(s) either at the scene or in the scene. Fingerprints are uniquely individualized and remain the same from three weeks gestation until far after decomposition has set in. Application of physical sciences combined with digital imaging has resulted in a variety of advances and offers scope for future developments in the visualization process of latent prints.

Fingerprint Comparison of Unidentified Remains

Most human remains are available for examination soon after death. Hence, fingerprint identification is relatively simple and the standard procedure of black printer's ink and post-mortem fingerprint cards are utilized. However, when a body is burned, decomposed, macerated, or mutilated more scientific measures are employed. The nature of the samples utilized will differ depending on the condition of the skin and the remains. Three sets of circumstances are possible; each of which necessitates unique techniques of obtaining legible fingerprint(s). These include the following:

A. Flexible and Intact Fingers: When the fingers are flexible it is often possible to secure inked fingerprint impressions of a deceased person through the regular inking process on a standard post-mortem fingerprint card. Identification may then be accomplished by:

1. Fingerprint comparison of deceased inked fingerprints and known inked fingerprints for TID (Tentative Identification).
2. An automated search of deceased fingerprints through the AFIS (Automated Fingerprint Identification System).

B. Hands Clenched or Fingerprints Wrinkled or Decomposing: When the hands of the deceased are clenched due to post-mortem rigor or the finger tips are wrinkled or decomposition has

begun, and/or where there are combinations of these conditions, the following techniques may be employed:

1. *Breaking the Rigor:* Rigor mortis causing the hands to be clenched may be forcibly broken in order to straighten the fingers after which the inking procedures may be employed.
2. *Injection of Tissue Builder:* The fingertips may be wrinkled due to immersion of hands in water, excessive humidity, or mummification. Such wrinkling will hamper acquisition of complete impressions. In such cases, the fingertips may be “rounded” by injection of a tissue builder.
3. *Removal of Skin of Fingertips or Disarticulation of Fingers:* With the onset of decompositions, both the flesh and the skin may become soft of flabby as well as fragile. In such cases, and if the ridge details are discernible, the following techniques may be employed:
 - a. Gently remove the skin of the fingertips and air dry them or harden them with hardening solution. The skin may then be placed over the gloved examiner’s fingers and the inking procedure employed.
 - b. The use of putty such as duplicast or micro-sil can be used to reproduce the ridge pattern or ridge characteristics.
 - c. Sometimes it is more appropriate to disarticulate the terminal phalanx at the distal interphalangeal joint, in which case, after drying, the epidermis is peeled from the joint and mounted between glass slides and then photography is utilized to capture the ridge detail and or ridge characteristics.

B. Absence of Tentative Identification: If there is no TID, the fingerprints obtained by the above methods are submitted for an automated search through AFIS. All fingerprint comparisons, wither visual, or through AFIS, must be carried out by the Latent Fingerprint Examiner.

Calendar

Student Rotations

UNT Health Science Center

Aimee Aquino White
Brent Michner

Baylor University

Haseeb Akuly

Autopsy Class

January 3, 2002 Ultra Sound Diagnostics, Dallas
January 17, 2002 Police Academy, Weatherford College
January 22, 2002 Police Department, Fort Worth

Investigators

January 18, 2002 Denton County – Human identification Dr. Rodney Crow

Child Fatality

January 25, 2002

Inservice Sectional Meeting:

January 9, 2002 Toxicology

Information Technology :

January 8, and 22, 2002 Update Computer Systems- ME's Office

MEETINGS: State, National and International

Terry Cummings-Annual Vital Statistics.

MONTHLY STATISTICS:

Case Distribution

Case	Current Month				Year-to-Date Dec 2001			
	Tarrant	Denton	Parker	Total	Tarrant	Denton	Parker	Total
Natural	62	6	2	70	721	112	45	878
Accidental	28	3	1	32	355	77	24	456
Suicide	9	1	1	11	143	25	7	175
Homicide	8	0	0	8	128	8	4	140
Undetermined	0	1	0	1	34	10	3	47
Unclassified	0	0	0	0	0	0	0	0
Non-Human Remains	1	0	0	1	22	0	1	23
Total ME Cases	133	19	7	159	1468	246	90	1804
Total Records	521	83	20	648	6180	1062	348	7768

Forensic Laboratories

Lab	Current Month		Year-to-Date	
	Tests	Services	Tests	Services
Toxicology	144	1037	1276	8514
Chemistry	115	1197	256	2786
Intoxilyzer	290	181	2789	1825
*Crime	188	1950	3807	36945
Histology	161	1995	1510	18945
Radiology	231	231	2431	2431

*Includes DNA, Trace, Fingerprints, Anthropology and Firearms

Investigations

Current Month			Year-to-Date		
M.E. Cases	Non-Jurisdictional Cases	Case Completion Time	M.E. Cases	Non-Jurisdictional Cases	Case Completion Time
133	24	3 Hours. 27Minutes	1468	4706	3 Hours 44Minutes

John and Jane Doe Identification

Current Month				Year-to-Date			
Tarrant	Denton	Parker	Total	Tarrant	Denton	Parker	Total
7	1	1	9	127	10	9	146

ALL IN THE FAMILY:

January Birthdays:

Michael Smith 6th

SELDOM SAY NEVER, SELDOM SAY ALWAYS

--- A Forensic Proverb ---